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COLUMBIA SPECTRUM
MANAGEMENT INC.

DOCKET FILE COPY ORIGINAL

January 12, 1994

BY MESSENGER

Mr. William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Unlicensed PCS Microwave Relocation Issues
ET Docket 92-9; Gen. Docket 90-314

Dear Mr. Caton:

Columbia Spectrum Management, Inc. ("CSM") hereby notifies the Commission pursuant to Section 1.1206(a)(2) of the Commission's Rules that the undersigned discussed issues concerning the above-referenced dockets on December 21, 1993 with Thomas P. Stanley, Ph.D, Mr. William Daniel, Mr. Paul Marrangoni, Mr. Anthony Serafini, and Mr. Phillip Inglis of the Office of Engineering and Technology.

We discussed CSM's proposal to solve the "free rider" relocation problem, various scenarios that would permit deployment of nomadic devices within a year, adjacent channel interference issues and other matters, as summarized in the attached paper. Because these issues are of broad importance to the success of unlicensed PCS and relate to issues currently being considered in Gen. Docket 90-314, this letter and its attachment are being served on the Commission's staff and on all commenting parties.

Please direct any inquiries concerning this matter to the undersigned.

Very truly yours,

Thomas E. Lusk

Thomas E. Lusk

cc (w/enc.): Attached list

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cc (w/enc.): Thomas P. Stanley, Ph.D
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Mr. William Daniel
Mr. Paul Marrangoni
Mr. Phillip Inglis

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Mr. Martin D. Liebman
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Parties filing comments in ET Docket 92-9
and Gen. Docket 90-314

January 12, 1994

COLUMBIA SPECTRUM MANAGEMENT, INC.
SUMMARY OF PROPOSALS AND DISCUSSIONS

The "Free Rider" Problem. Most microwave paths in the 1850-1990 MHz band are paired with another path, most often with an 80 MHz transmit-receive separation. It is impractical to relocate one-half of a pair of paths without relocating both paths. The 80 MHz transmit-receive separation used for microwave paths has been duplicated in the Commission's spectrum plan for PCS to permit PCS licensees to realize the maximum benefit from relocating incumbent microwave users.

But a significant percentage of microwave users -- as much as 40 percent nationwide -- utilize a non-standard transmit receive separation. And microwave relocations that will be necessary to implement unlicensed PCS in the 1890-1930 MHz band will necessarily relocate both paired paths even when only one path falls within the 1890-1930 MHz band. The paired path that is not within the 1890-1930 MHz band will fall in either a licensed PCS block or within frequencies being held for MSS.

A PCS or MSS licensee could receive a windfall if another entity -- either another PCS licensee or UTAM -- pays the full cost of relocating a microwave facility that is partially within that PCS or MSS licensee's frequency band. At least in the case of licensed PCS, however, it would be unfair for the Commission to require the PCS licensee to pay a portion of the cost of relocating that microwave facility if the PCS licensee does not have an immediate need for those frequencies because of spectrum-sharing technologies or because PCS service in that area might not yet demand the use of those frequencies. It would be equally unfair, however, to require the party that does relocate the paths -- either the first PCS licensee or the shareholders of UTAM -- to fund the entire cost of relocations that ultimately benefit other MSS or PCS licensees.

Columbia Spectrum Management, Inc. ("CSM") proposes a solution to the "free rider" problem that will be fair to all parties and will not require any change in the rules the Commission has adopted for microwave relocation. Under CSM's approach, the license for the microwave path being relocated would be assigned from the microwave incumbent to the party that relocates the path. That party -- either a PCS licensee or UTAM -- would remain the "licensee" of the path, but would be granted a waiver of loading requirements and would not transmit signals on the path.

That entity would continue to hold the license for the paired path that falls within MSS or licensed PCS spectrum. If and when a PCS or MSS licensee requires the use of the frequencies licensed to that entity, the entity would turn in the license to that path to the Commission upon the payment by the PCS or MSS licensee of a proportionate share of the costs of relocating the microwave facility (plus reasonable interest, which could be capped by the Commission).[1/] Under this approach, the MSS or PCS licensee would pay nothing for the relocation of the path unless it needed to utilize the frequencies represented by the path, and even then would pay only its fair share of the actual costs of clearing those frequencies.[2/] The relocating party would, of course, have every incentive to keep those costs as low as possible.

Early Deployment of Unlicensed Devices. It is crucial to the success of unlicensed PCS that coordinatable non-nomadic devices be implemented without delay. It is also crucial to ensure that unlicensed nomadic devices are permitted an early introduction. To accomplish this, it will be necessary to clear the 1910-1930 MHz band as quickly as possible.

Attached hereto are diagrams prepared by CSM illustrating a plan that could permit sufficient spectrum to be cleared within the first 18 months of UTAM's operation. CSM's plan would permit an initial bandwidth of 6 MHz for each isochronous and asynchronous (e.g., 1910-1920 and 1920-1930 MHz, respectively) band. Coordinatable non-nomadic devices could be implemented immediately. Nomadic voice and data devices could be introduced after relocating an initial

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[1/] In the largest number of cases, the relocating entity would relocate both a path within its spectrum band and the PCS/MSS licensee's band. In that case, the proportion of the cost to be borne by the PCS or MSS licensee would be 50 percent. It is possible, however, that a path could straddle geographically two PCS licensing areas; in that case, the proportion could be either less or greater than 50 percent.

[2/] As a condition of granting a waiver of loading requirements, the Commission would require the "licensee" of the path to accept only the appropriate proportion of its actual costs (plus reasonable interest, which could be capped by the Commission) in exchange for turning in the license to that path. If any PCS or MSS licensee believes the relocating entity is attempting to obtain more than its costs, the PCS or MSS licensee could ask the Commission to revoke the waiver that permits the relocating entity to hold the license; this process would prevent "greenmail."

complement of approximately 190 microwave incumbents occupying the 1910-1920 MHz band and an additional 195 incumbents occupying the 1920-1930 MHz band. CSM estimates that this initial complement of incumbents can be relocated within 18 months if funds are made available. As incumbents are cleared from specific geographic areas, coordinatable voice and data devices will be more easily deployed, with pockets of clear spectrum permitting these devices to be installed with little or no prior coordination.

Under the CSM plan, nomadic devices could be deployed after relocating the incumbents in the 1910-1930 MHz band (Blocks "U3" and "U4" on the attached diagram). Guard bands of 2 MHz (see diagram) would be utilized to alleviate adjacent channel interference, eliminating the immediate need to relocate those incumbents in the adjacent channels. When all incumbents are relocated from both blocks, the interior guard bands (1920 ± 2 MHz) are eliminated, allowing 8 MHz of bandwidth for each isochronous and asynchronous (e.g., 1910-1920 and 1920-1930 MHz, respectively) band with guard bands remaining at the outer edges (e.g., clearing co-channel frequencies in Block "U3" clears adjacent channel frequencies in Block "U4" and vice versa.)

CSM's microwave relocation plan provides several benefits to both the unlicensed industry and the incumbent microwave users:

- Prevents adjacent channel interference to the incumbent microwave users;[3/]
- Permits deployment of coordinatable devices with a minimum of coordination;
- Permits deployment of nomadic devices at the earliest possible date;[4/]
- Allows a considerable amount of work to be accomplished early with a minimum financial outlay;

[3/] This will effectuate the Commission's requirement that microwave incumbents do not receive interference from unlicensed PCS devices. See Amendment of the Commission's Rules to Establish New Personal Communications Services, Second Report and Order, 8 F.C.C. Rcd. 7700, 7739 (1993).

[4/] The Commission has recognized the value of an early deployment of unlicensed nomadic devices. See id. at 7740 ("we agree with Apple that the early introduction of nomadic PCS devices is desirable").

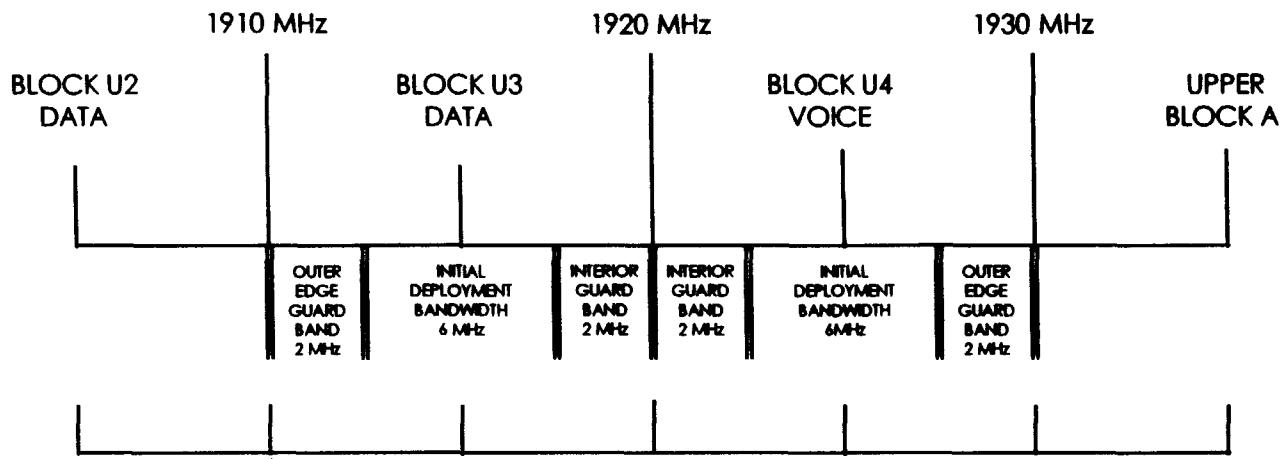
- Ensures an early entry into the microwave manufacturing cycle, well ahead of the thousands of incumbents that will be relocated by licensed PCS service providers;

- Eliminates the necessity of relocating the adjacent channel incumbents at an early date.

Adjacent Channel Interference Issues. CSM has been preparing a field test to verify adjacent channel interference criteria to be incorporated into TIA TR14.11 Bulletin 10F Appendix H. Test equipment, test procedures, and test setup were discussed with the Commission's staff. With Mr. Inglis, CSM discussed microwave system characteristics that would increase the potential for adjacent channel interference cases.

FCC XFS Database. CSM discussed with the Commission's staff the advantages of various data sources and possible methods of implementing a database to facilitate microwave relocation.

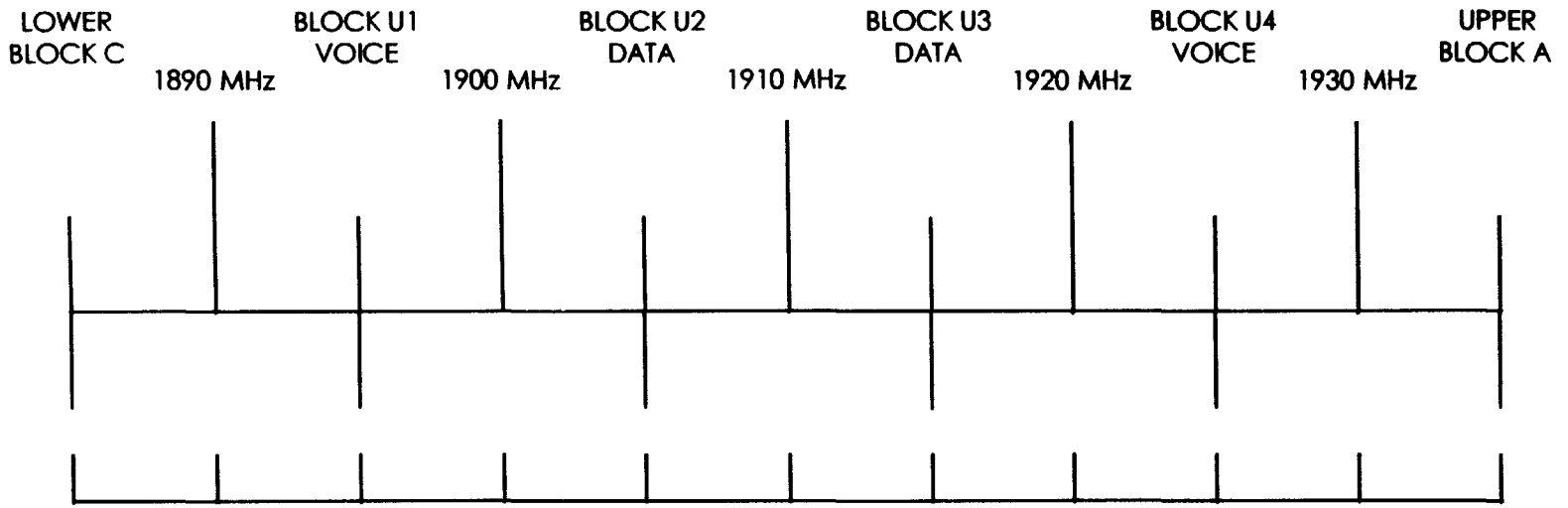
UNLICENSED PCS EARLY DEPLOYMENT PLAN



1905 MHz	1910 MHz	1915 MHz	1920 MHz	1925 MHz	1930 MHz	1935 MHz	MICROWAVE INCUMBENT FREQUENCIES
CO-CHANNEL BLOCK U2 AND ADJACENT CHANNEL TO BLOCKS U1 & U3	CO-CHANNEL TO BLOCKS U2 AND U3	CO-CHANNEL BLOCK U3 AND ADJACENT CHANNEL TO BLOCKS U2 & U4	CO-CHANNEL TO BLOCKS U3 AND U4	CO-CHANNEL TO BLOCK U4 AND ADJACENT CHANNEL TO BLOCK U3 & UPPER BLOCK A	CO-CHANNEL TO BLOCK U4	ADJACENT CHANNEL TOBLOCK U4	
10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	MICROWAVE BANDWIDTH
640	1	192	1	194	1	654	NUMBER OF SIMPLEX MICROWAVE PATHS

COLUMBIA SPECTRUM MANAGEMENT INC.

UNLICENSED PCS BAND PLAN



1885 MHz ADJACENT CHANNEL TO BLOCK U1	1890 MHz CO-CHANNEL TO BLOCK U1	1895 MHz CO-CHANNEL BLOCK U1 AND ADJACENT CHANNEL TO BLOCK U2 & UPPER BLOCK C	1900 MHz CO-CHANNEL TO BLOCKS U1 AND U2	1905 MHz CO-CHANNEL BLOCK U2 AND ADJACENT CHANNEL TO BLOCKS U1 & U3	1910 MHz CO-CHANNEL TO BLOCKS U2 AND U3	1915 MHz CO-CHANNEL BLOCK U3 AND ADJACENT CHANNEL TO BLOCKS U2 & U4	1920 MHz CO-CHANNEL TO BLOCKS U3 AND U4	1925 MHz CO-CHANNEL TO BLOCK U4 AND ADJACENT CHANNEL TO BLOCK U3 & UPPER BLOCK A	1930 MHz CO-CHANNEL TO BLOCK U4	1935 MHz ADJACENT CHANNEL TOBLOCK U4	MICROWAVE CARRIER FREQUENCIES
10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	5 MHz	10 MHz	MICROWAVE BANDWIDTH
663	85	580	85	640	1	192	1	194	1	654	NUMBER OF SIMPLEX MICROWAVE PATHS

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